

21st IAA SYMPOSIUM ON VISIONS AND STRATEGIES FOR THE FUTURE (D4)  
Modern Day Space Elevators Customer Design Drivers (3)

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CHARACTERISTICS OF A PERMANENT SPACE ACCESS TRANSPORTATION  
INFRASTRUCTURE

**Abstract**

Space Elevators' remarkable transformational capabilities as a permanent space access infrastructure dwarfs traditional space access approaches. Transportation infrastructures, such as trains, provide to the user: permanent, daily, and routine; massive movement; safe; inexpensive; environmentally friendly; storage facilities at stations (ours are at GEO and the Apex Anchor); assembly and repair areas (above the massive gravity of Earth at GEO and the Apex Anchor); rapid transit (in our case to Moon/Mars); and, others. This paper will start discussions with the top-level transformational characteristics of a permanent space access transportation infrastructure – Space Elevators. This analysis at “a higher level” will enable discussions about the possibilities, instead of the technical difficulties in fulfilling their promise. The results of the ISEC Dual Space Access Architecture study show the characteristics leading to remarkable capabilities enabling many new and traditional missions. As such, the realization surfaces that: “As we build it – they will come!” This phrase has driven inventions and developments from the beginning of time. These types of statements are commercially powerful when a projected technology is going to transform the “way of doing business.” These transformational leaps have enabled remarkable capabilities in communications, transportation, sports, business, and/or leisure. One potentially powerful transformation comes from Space Elevator electric tether climbers which can be seen as one of these game changers for the environment – no burning of rocket fuels inside our atmosphere or leaving of space debris in LEO. As Alfaro and Barry have stated: “The Industry must . . . develop a long-term sustainable economic overview for Space Elevators to accelerate the development of this megaproject.” As this is realized, investors will support the development of this transformational permanent space access transportation infrastructure. As we build it, they will come!